

1. An airbag module for protecting an occupant of a vehicle from impact, the airbag module comprising:

a cushion comprising a deployed configuration in which the cushion is inflated to provide impact protection and a stowed configuration in which the cushion is compactly storable; and

a retention apparatus comprising a flexible member and a fastener attachable to the flexible member via an attachment mechanism such that the fastener is fastenable to attach the retention apparatus to the cushion to keep the cushion in the stowed configuration, wherein the attachment mechanism has an attachment strength selected to permit removal of the fastener from the flexible member to permit inflation of the cushion to the deployed configuration.

2. The airbag module of claim 1, wherein the cushion comprises an inflatable curtain designed to provide lateral impact protection.

3. The airbag module of claim 2, wherein the cushion is elongated in the stowed configuration and has a longitudinal axis at least partially encircled by the retention apparatus to facilitate installation of the cushion in a generally horizontal orientation within the vehicle.

4. The airbag module of claim 3, wherein the cushion is rolled in the stowed configuration.

5. The airbag module of claim 3, wherein the retention apparatus extends along substantially the entire longitudinal length of the cushion.

6. The airbag module of claim 3, further comprising at least one additional retention apparatus, each of which comprises an additional flexible member and an additional fastener attachable to the additional flexible member via an additional attachment mechanism such that the additional fastener is fastenable to attach the additional retention apparatus to the cushion to keep the cushion in the stowed configuration, wherein all of the retention apparatus are distributed along the longitudinal length of the cushion.

7. The airbag module of claim 1, wherein the fastener comprises a hook-and-loop fastening strip.

8. The airbag module of claim 7, wherein the flexible member is constructed of a fabric having a napped side and a non-napped side, wherein the hook-and-loop fastening strip is attached to the non-napped side so that the flexible member can be rolled to fasten the hook-and-loop fastening strip to the napped side.

9. The airbag module of claim 8, wherein the flexible member is constructed of a non-woven polypropylene fabric.

10. The airbag module of claim 1, wherein the attachment mechanism comprises a sewn seam formed of a thread having a strength selected to permit breakage of the thread in response to entry of gas into the cushion.

5 11. The airbag module of claim 10, wherein the thread comprises a T-16 size, wherein the thread is applied in double needle lock fashion along the fastener.

12. A retention apparatus for retaining a cushion of an airbag module for protecting an occupant of a vehicle from impact, the retention apparatus comprising:

a flexible member;

an attachment mechanism; and

5 a fastener attached to the flexible member via the attachment mechanism;

wherein the fastener is fastenable to attach the retention apparatus to a cushion of the airbag module to keep the cushion in a stowed configuration in which the cushion is compactly storable;

wherein the attachment mechanism has an attachment strength selected to permit  
10 removal of the fastener from the flexible member to permit inflation of the cushion to a deployed configuration in which the cushion is inflated to provide impact protection.

13. The retention apparatus of claim 12, wherein the cushion comprises an inflatable curtain designed to provide lateral impact protection, wherein the cushion is  
15 elongated in the stowed configuration and the retention apparatus is sized to encircle a longitudinal axis of the cushion to facilitate installation of the cushion in a generally horizontal orientation within the vehicle.

14. The retention apparatus of claim 12, wherein the fastener comprises a  
20 hook-and-loop fastening strip

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15. The retention apparatus of claim 14, wherein the flexible member is constructed of a fabric having a napped side and an opposite side, wherein the hook-and-loop fastening strip is attached to the opposite side so that the flexible member can be rolled to fasten the hook-and-loop fastening strip to the napped side.

16. The retention apparatus of claim 12, wherein the attachment mechanism comprises a sewn seam formed of a thread having a strength selected to permit breakage of the thread in response to entry of gas into the cushion.

17. An attachment assembly for a retention apparatus designed to keep a cushion in a stowed configuration in which the cushion is compactly storable, the retention apparatus comprising a flexible member, the attachment assembly comprising:

a hook-and-loop fastening strip; and

an attachment mechanism usable to attach the hook-and-loop fastening strip to the flexible member, the attachment mechanism having an attachment strength selected to permit separation of the hook-and-loop fastening strip from the flexible member to permit inflation of the cushion to a deployed configuration in which the cushion is inflated to provide impact protection.

18. The attachment assembly of claim 17, wherein the cushion comprises an inflatable curtain designed to provide lateral impact protection, wherein the hook-and-loop fastening strip comprises an elongated shape extending substantially along a longitudinal length of the cushion to attach the retention apparatus to the cushion substantially along the longitudinal length.

19. The attachment assembly of claim 17, wherein the flexible member is constructed of a fabric having a napped side and an opposite side, wherein the hook-and-loop fastening strip is attached to the opposite side via the attachment mechanism so that the flexible member can be rolled to fasten the hook-and-loop fastening strip to the napped side.

20. The attachment assembly of claim 17, wherein the attachment mechanism comprises a sewn seam formed of a thread having a strength selected to permit breakage of the thread in response to entry of gas into the cushion.

5 21. The attachment assembly of claim 20, wherein the thread comprises a T-16 size, wherein the thread is applied in double needle lock fashion along the fastener.

22. An airbag module for protecting an occupant of a vehicle from impact, the airbag module comprising:

a cushion comprising a deployed configuration in which the cushion is inflated to provide impact protection and a stowed configuration in which the cushion is compactly storable;

a fastener fastenable to keep the cushion in the stowed configuration; and

an attachment mechanism usable to couple the fastener to the cushion independently of fastening of the fastener, wherein the attachment mechanism has an attachment strength selected to permit decoupling of the fastener from the cushion to permit inflation of the cushion to the deployed configuration.

23. The airbag module of claim 22, wherein the fastener is attached to a flexible member by the attachment mechanism to form a retention apparatus at least partially encircling the cushion to keep the cushion in the stowed configuration.

24. The airbag module of claim 23, further comprising at least one additional fastener attached to at least one additional flexible member by at least one additional attachment mechanism to form at least one additional retention apparatus at least partially encircling the cushion to keep the cushion in the stowed configuration, wherein all of the retention apparatus are distributed along a longitudinal length of the cushion.

25. The airbag module of claim 23, wherein the fastener is fastenable to the retention apparatus such that the retention apparatus fully encircles at least a portion of the cushion.



26. The airbag module of claim 23, wherein the fastener comprises a hook-and-loop fastening strip fastenable to the retention apparatus, wherein the flexible member is constructed of a fabric having a napped side and an opposite side, wherein the hook-and-loop fastening strip is attached to the opposite side so that the flexible member  
5 can be rolled to fasten the hook-and-loop fastening strip to the napped side.

27. The airbag module of claim 26, wherein the attachment mechanism comprises a sewn seam formed of a thread having a strength selected to permit breakage of the thread in response to entry of gas into the cushion.

28. A method for providing impact protection for an occupant of a vehicle through the use of an airbag module, the airbag module comprising a cushion having a deployed configuration in which the cushion is inflated to provide impact protection and a stowed configuration in which the cushion is compactly storable, and a retention apparatus comprising a flexible member and a fastener attached to the flexible member, wherein the fastener is fastened to attach the retention apparatus to the cushion to keep the cushion in the stowed configuration during normal vehicle operation, the method comprising:

receiving inflation gas into the cushion to induce inflation of the cushion from the stowed configuration; and

releasing the fastener from attachment with the flexible member to permit opening of the retention apparatus to permit inflation of the cushion into the deployed configuration.

29. The method of claim 28, wherein the cushion comprises an inflatable curtain, wherein opening the retention apparatus to permit inflation of the cushion into the deployed configuration comprises permitting inflation of the cushion beside the occupant to provide lateral impact protection.

30. The method of claim 29, wherein the cushion is rolled in the stowed configuration, wherein opening the retention apparatus to permit inflation of the cushion into the deployed configuration comprises permitting the cushion to unroll.

31. The method of claim 28, wherein the fastener comprises a hook-and-loop fastening strip, wherein the flexible member is constructed of a fabric having a napped side and an opposite side, wherein the hook-and-loop fastening strip is attached to the opposite side so that the flexible member can be rolled to fasten the hook-and-loop fastening strip to the napped side, wherein releasing the fastener from attachment with the flexible member comprises releasing the hook-and-loop fastening strip from attachment to the opposite side while permitting the hook-and-loop fastening strip to remain fastened to the napped side.

32. The method of claim 28, wherein the attachment mechanism comprises a sewn seam formed of a thread, wherein releasing the fastener from attachment with the flexible member comprises breaking the thread in response to entry of gas into the cushion.

33. The method of claim 28, wherein the airbag module further comprises at least one additional retention apparatus, each of which comprises at least one additional flexible member and at least one additional fastener attached to the additional flexible member, wherein the additional fastener is fastened to attach the additional retention apparatus to the cushion to keep the cushion in the stowed configuration during normal vehicle operation, the method further comprising:

releasing each additional fastener from attachment with each additional flexible member to permit opening of each additional retention apparatus to permit inflation of the cushion into the deployed configuration.

34. A method for assembling an airbag module for protecting an occupant of a vehicle from impact, the airbag module comprising a retention apparatus and cushion having a lengthwise axis, the cushion having a deployed configuration in which the cushion is inflated to provide impact protection and a stowed configuration in which the cushion is compactly storable, the method comprising:

disposing the cushion in the stowed configuration;

wrapping the retention apparatus at least partially around the lengthwise axis of the cushion; and

attaching the retention apparatus to the cushion via an attachment mechanism such that the cushion is retained in the stowed configuration until inflation of the cushion, wherein the attachment mechanism has an attachment strength selected to permit the retention apparatus to open to permit inflation of the cushion to the deployed configuration.

35. The method of claim 34, wherein disposing the cushion in the stowed configuration comprises rolling the cushion.

36. The method of claim 34, wherein the retention apparatus comprises a flexible member having a first edge and a second edge, wherein wrapping the retention apparatus at least partially around the lengthwise axis comprises placing the cushion adjacent to the flexible member and extending the first and second edges around the cushion such that the first and second edges are disposed adjacent to each other.

37. The method of claim 36, wherein placing the cushion adjacent to the flexible member comprises placing the cushion on top of the flexible member, wherein extending the first and second edges around the cushion comprises rolling the cushion and the flexible member together.

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38. The method of claim 34, wherein the retention apparatus comprises a flexible member and a fastener, wherein wrapping the retention apparatus at least partially around the lengthwise axis comprises disposing the flexible member to encircle at least part of the cushion, wherein attaching the retention apparatus to the cushion via the attachment mechanism comprises:

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attaching the fastener to the flexible member via the attachment mechanism; and

fastening the fastener to the flexible member to keep the flexible member encircling at least part of the cushion.

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39. The method of claim 38, wherein the fastener comprises a hook-and-loop fastening strip, wherein the flexible member is constructed of a fabric having a napped side and an opposite side, wherein attaching the fastener to the flexible member comprises attaching the hook-and-loop fastening strip to the opposite side, wherein fastening the fastener to the flexible member comprises pressing the hook-and-loop fastener against the napped side.

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40. The method of claim 34, further comprising:

wrapping at least one additional retention apparatus at least partially around the lengthwise axis; and

5 attaching each additional retention apparatus to the cushion via at least one additional attachment mechanism to help retain the cushion in the stowed configuration until inflation of the cushion, wherein each additional attachment mechanism has an attachment strength selected to permit the additional retention apparatus to open to permit inflation of the cushion to the deployed configuration.

10 41. The method of claim 34, wherein attaching the retention apparatus to the cushion via the attachment mechanism comprises sewing the retention apparatus to form a sewn seam with a thread having a strength selected to permit breakage of the thread in response to entry of gas into the cushion.

15 42. The method of claim 41, wherein the thread comprises a T-16 size, wherein sewing the retention apparatus to form the sewn seam comprises applying the thread in double needle lock fashion.